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JAN 09 2001

In re Application of: George P. Lomonosoff *et al.*

Serial No.: 09/304,967

Group No.: 1645

TECH CENTER 1600/2900

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Entitled:
**Modified Plant Viruses as Vectors of
Heterologous Peptides**

CERTIFICATE RE: SEQUENCE LISTING

Assistant Commissioner for Patents
Washington, D.C. 20231

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Dated: <u>Jan 2, 2001</u>	By: <u>Marilyn Moy</u> Marilyn Moy

Sir:

I hereby state that the enclosed Sequence Listing is being submitted in paper copy and on a computer-readable diskette, and that the content of the paper and computer readable copies are the same.

Dated: 2 January 2001

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SEQUENCE LISTING

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<110> Lomonossoff, George P.
Johnson, John E.
Bendig, Mary
Jones, Tim
Longstaff, Marian

<120> Modified Plant Viruses as Vectors of Heterologous Peptides

B1
<130> DOW-04646

<140> 09/304,967
<141> 1999-05-05

<150> 08/471,048
<151> 1995-06-06

<150> 08/612,858
<151> 1996-03-12

<150> 08/137,032
<151> 1993-03-18

<150> PCT/GB20/00589
<151> 1992-04-02

<160> 123

<170> PatentIn Ver. 2.0

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<213> Cowpea mosaic virus

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cctgctccat tttcagacgt tacagcagta acttttgact taatcaacgg caaaaataact 120

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20 25 30

Asp Leu Ile Asn Gly Lys Ile Thr
35 40

<210> 3
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<212> PRT
<213> Foot-and-mouth disease virus

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b1

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1 5 10 15

Val Leu Ala Gln Lys Val Ala Arg Thr Leu Pro
20 25

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aaaagggtgc tcggactctt c 81

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<213> Foot-and-mouth disease virus

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ccaacgagcc tgagaaggat c 81

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Ala Pro Phe Ser
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<211> 156
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cggaactttc ctagcactcc tcctgctcca ttttca 156

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<213> Foot-and-mouth disease virus

B1

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1 5 10 15

Asn Leu Arg Gly Asp Leu Gln Val Leu Ala Gln Lys Val Ala Arg Thr ...
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Leu Pro Ser Thr Pro Pro Ala Pro Phe Ser Asp Val Thr Ala Val Thr
35 40 45

Phe Asp Leu Ile
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<210> 9
<211> 156
<212> DNA
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ttttcagacg ttacagcagt aacttttgc ttaatc 156

<210> 10
<211> 156
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Ala Val Thr Phe Asp Leu Ile
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<211> 69
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gacttaatc 69

81

<210> 13
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<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic

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gacttaatc 69

<210> 14
<211> 21
<212> PRT
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic

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1 5 10 15

Arg Asp Arg Ser Asp
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<210> 15
<211> 67
<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic

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cggacgt 67

<210> 16
<211> 59
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<213> Artificial Sequence

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<210> 17
<211> 47
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<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

b1

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1 5 10 15

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20 25 30

Asp Arg Asp Arg Ser Asp Val Thr Ala Val Thr Phe Asp Leu Ile
35 40 45

<210> 18
<211> 141
<212> DNA
<213> Artificial Sequence

<220>
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<400> 18
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gcagtaacct ttgacttaat c 141

<210> 19
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 19
Ser Thr Pro Ala Thr Gly Ile Asp Asn His Arg Glu Ala Lys Leu Asp
1 5 10 15

<210> 20
<211> 52
<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic

<400> 20
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<210> 21
<211> 44
<212> DNA
<213> Artificial Sequence

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<210> 22
<211> 42
<212> PRT
<213> Artificial Sequence

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<400> 22
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1 5 10 15

Ala Ser Thr Pro Ala Thr Gly Ile Asp Asn His Arg Glu Ala Lys Leu
20 25 30

Asp Val Thr Ala Val Thr Phe Asp Leu Ile
35 40

<210> 23
<211> 126
<212> DNA
<213> Artificial Sequence

b1

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gctactggaa tcgataatca tagagaagct aaattggacg tcacagcagt aactttgac 120
ttaatc 126

<210> 24
<211> 39
<212> PRT
<213> Foot-and-mouth disease virus

<400> 24
Tyr Ser Pro Cys Met Ile Ala Ser Thr Val Pro Asn Leu Arg Gly Asp
1 5 10 15

Leu Gln Val Leu Ala Gln Lys Val Ala Arg Thr Leu Pro Asp Val Thr
20 25 30

Ala Val Thr Phe Asp Leu Ile
35

<210> 25
<211> 117
<212> DNA
<213> Foot-and-mouth disease virus

<400> 25
tatagcccat gtatgatagc tagcactgtt cctaatttga gaggagatct tcaagtttg 60
gctcaaaagg ttgctcgac tcttcctgac gtcacagcag taactttga cttaatc 117

<210> 26
<211> 117
<212> DNA
<213> Foot-and-mouth disease virus

<400> 26
 atatcggtta catactatatcg atcgtgacaa ggattaaact ctccctctaga agttcaaaac 60
 cgagtttcc aacgagcctg agaaggactg cagtgtcgtc attgaaaact gaattag 117

<210> 27
 <211> 5
 <212> PRT
 <213> Foot-and-mouth disease virus

<400> 27
 Ser Thr Pro Pro Ala
 1 5

<210> 28
 <211> 17
 <212> DNA
 <213> Foot-and-mouth disease virus

<400> 28
 ctagcaactcc tcctgct 17

<210> 29
 <211> 13
 <212> DNA
 <213> Foot-and-mouth disease virus

<400> 29
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<210> 30
 <211> 4
 <212> PRT
 <213> Foot-and-mouth disease virus

<400> 30
 Pro Phe Ser Asp
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<210> 31
 <211> 14
 <212> DNA
 <213> Foot-and-mouth disease virus

<400> 31
 ccattttcag acgt 14

<210> 32
 <211> 10
 <212> DNA
 <213> Foot-and-mouth disease virus

<400> 32
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<210> 33
 <211> 19
 <212> PRT
 <213> Foot-and-mouth disease virus

B1

<400> 33
 Val Pro Asn Leu Arg Gly Asp Leu Gln Val Leu Ala Gln Lys Val Ala
 1 5 10 15
 Arg Thr Leu

<210> 34
 <211> 57
 <212> DNA
 <213> Foot-and-mouth disease virus

<400> 34
 gttcctaatt tgagaggaga tcttcaagtt ttggctcaaa aggttgctcg gactctt 57

<210> 35
 <211> 57
 <212> DNA
 <213> Foot-and-mouth disease virus

<400> 35
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BI
 <210> 36
 <211> 14
 <212> PRT
 <213> Foot-and-mouth disease virus

<400> 36
 Lys Asp Ala Thr Gly Ile Asp Asn His Arg Glu Ala Lys Leu
 1 5 10

<210> 37
 <211> 42
 <212> DNA
 <213> Foot-and-mouth disease virus

<400> 37
 aaagatgcta ctggaatcga taatcataga gaagcaaaaat tg 42

<210> 38
 <211> 42
 <212> DNA
 <213> Foot-and-mouth disease virus

<400> 38
 tttctacgat gaccttagct attagtatct cttcgaaaaac 42

<210> 39
 <211> 22
 <212> PRT
 <213> Foot-and-mouth disease virus

<400> 39
 Pro Arg Gly Pro Asp Arg Pro Glu Gly Ile Glu Glu Glu Gly Glu
 1 5 10 15

Arg Asp Arg Asp Arg Ser
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<210> 40
 <211> 66
 <212> DNA
 <213> Foot-and-mouth disease virus

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 agatca 66

<210> 41
 <211> 66
 <212> DNA
 <213> Foot-and-mouth disease virus

<400> 41
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 tctagt 66

<210> 42
 <211> 13
 <212> PRT
 <213> Soybean mosaic virus

<400> 42
 Met Glu Gly Gly Ser Ser Lys Thr Ala Val Asn Thr Gly
 1 5 10

SI
 <210> 43
 <211> 39
 <212> DNA
 <213> Soybean mosaic virus

<400> 43
 atgaaaggag gatcatctaa gactgctgtg aacactggg 39

<210> 44
 <211> 39
 <212> DNA
 <213> Soybean mosaic virus

<400> 44
 atgaaaggag gatcctctaa gactgctgtg aacactggg 39

<210> 45
 <211> 39
 <212> DNA
 <213> Soybean mosaic virus

<400> 45
 atgaaaggag gatcatctaa gactgctgtt aacactggg 39

<210> 46
 <211> 16
 <212> PRT
 <213> Homo sapiens

<400> 46
 Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
 1 5 10 15

B1

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<210> 47
<211> 48
<212> DNA
<213> Homo sapiens

<400> 47
ggtgttactt ctgctcctga tactagacct gctcctggtt ctactgct 48

<210> 48
<211> 48
<212> DNA
<213> Homo sapiens

<400> 48
ccacaatgaa gacgaccact atgatctgga cgaggaccaa gatgacga 48

<210> 49
<211> 68
<212> DNA
<213> Artificial Sequence

<220>
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ctgctgtt 68

<210> 50
<211> 64
<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic

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acaa 64

<210> 51
<211> 68
<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence: Synthetic

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ctgctgtt 68

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<211> 64
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
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b1

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<213> Artificial Sequence

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acaa                                         64

<210> 55
<211> 68
<212> DNA
<213> Artificial Sequence

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ctgctgtt                                         68

<210> 56
<211> 64
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

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acaa                                         64

<210> 57
<211> 68
<212> DNA
<213> Artificial Sequence

<220>
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ctgctgtt 68

<210> 58
<211> 64
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic

<400> 58
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acaa 64

<210> 59
<211> 33
<212> PRT
<213> Soybean mosaic virus

<400> 59
Asn Ile Tyr Ala Pro Ala Arg Leu Thr Ile Ala Ala Ala Asn Ser Ser
1 5 10 15

Ile Asn Ile Ala Ser Val Gly Thr Leu Tyr Ala Thr Tyr Glu Val Glu
20 25 30

Leu

b1

<210> 60
<211> 37
<212> PRT
<213> Soybean mosaic virus

<400> 60
Asn Ile Gly Asn Ile Leu Val Pro Ala Arg Leu Val Ile Ala Met Glu
1 5 10 15

Gly Gly Ser Ser Lys Thr Ala Val Asn Thr Gly Arg Leu Tyr Ala Ser
20 25 30

Tyr Thr Ile Arg Leu
35

<210> 61
<211> 37
<212> PRT
<213> Soybean mosaic virus

<400> 61
Asn Ile Ala Thr Asp Leu Val Pro Ala Arg Leu Val Ile Ala Leu Leu
1 5 10 15

Asp Gly Ser Ser Ser Thr Ala Val Ala Ala Gly Arg Ile Tyr Ala Ser
20 25 30

Tyr Thr Ile Gln Met
35

<210> 62
 <211> 17
 <212> PRT
 <213> Lucerne transient streak virus

.....

<400> 62
 Ile Ala Ala Ala Asn Ser Ser Ile Asn Ile Ala Ser Val Gly Thr Leu
 1 5 10 15

Tyr

<210> 63
 <211> 51
 <212> DNA
 <213> Lucerne transient streak virus

<400> 63
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<210> 64
 <211> 51
 <212> DNA
 <213> Lucerne transient streak virus

<400> 64
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Bl

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 <211> 51
 <212> DNA
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<210> 66
 <211> 16
 <212> PRT
 <213> Homo sapiens

<400> 66
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 1 5 10 15

<210> 67
 <211> 48
 <212> DNA
 <213> Homo sapiens

<400> 67
 ggtgttactt ctgctcctga tactagacct gtcctggtt ctactgct 48

<210> 68
 <211> 48
 <212> DNA
 <213> Homo sapiens

<400> 68
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B1

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<210> 69
<211> 83
<212> DNA
<213> Lucerne transient streak virus

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ataaacatag ctagtgtggg tac 83

<210> 70
<211> 83
<212> DNA
<213> Lucerne transient streak virus

<400> 70
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aaggtaattt g tatcgatcac acc 83

<210> 71
<211> 83
<212> DNA
<213> Lucerne transient streak virus

<400> 71
gctaacagct ccggtgttac ttctgctcct gatactagac ctgctcctgg ttctactgct 60
ataaacatag ctagtgtggg tac 83

<210> 72
<211> 83
<212> DNA
<213> Lucerne transient streak virus

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acgatattt g tatcgatcac acc 83

<210> 73
<211> 83
<212> DNA
<213> Lucerne transient streak virus

<400> 73
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gctaacatag ctagtgtggg tac 83

<210> 74
<211> 83
<212> DNA
<213> Lucerne transient streak virus

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acgtcgattg tcgaggatc cacaatgaag acgaccaacta tgatctggac gaggaccaag 60
atgacgattt g tatcgatcac acc 83

<210> 75
<211> 83
<212> DNA
<213> Lucerne transient streak virus
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<400> 75
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 actgtatag ctgtgtggg tac 83

<210> 76
 <211> 83
 <212> DNA
 <213> Lucerne transient streak virus

<400> 76
 acgtcgatt tcgaggtatt tgccacaatg aagacgacca ctatgatctg gacgaggacc 60
 aagatgacga tatcgatcac acc 83

<210> 77
 <211> 83
 <212> DNA
 <213> Lucerne transient streak virus

<400> 77
 gctaacagct ccataaacat aggtgttact tctgctcctg atactagacc tgctcctgg 60
 tctactgctg ctgtgtggg tac 83

<210> 78
 <211> 83
 <212> DNA
 <213> Lucerne transient streak virus

<400> 78
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 accaagatga cgacgatcac acc 83

β
 <210> 79
 <211> 83
 <212> DNA
 <213> Lucerne transient streak virus

<400> 79
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 gttctactg ctgtgtggg tac 83

<210> 80
 <211> 83
 <212> DNA
 <213> Lucerne transient streak virus

<400> 80
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 aggaccaaga tgacgatcac acc 83

<210> 81
 <211> 324
 <212> PRT
 <213> Tomato bushy stunt virus

<400> 81
 Lys Lys Gln Gln Met Ile Asn His Val Gly Gly Thr Gly Gly Ala Ile
 1 5 10 15

Met Ala Pro Val Ala Val Thr Arg Gln Leu Val Gly Ser Lys Pro Lys
 20 25 30

Phe Thr Gly Arg Thr Ser Gly Ser Val Thr Val Thr His Arg Glu Tyr
35 40 45

Leu Ser Gln Val Asn Asn Ser Thr Gly Phe Gln Val Asn Gly Gly Ile
50 55 60

Val Gly Asn Leu Leu Gln Leu Asn Pro Leu Asn Gly Thr Leu Phe Ser
65 70 75 80

Trp Leu Pro Ala Ile Ala Ser Asn Phe Asp Gln Tyr Thr Phe Asn Ser
85 90 95

Val Val Leu His Tyr Val Pro Leu Cys Ser Thr Thr Glu Val Gly Arg
100 105 110

Val Ala Ile Tyr Phe Asp Lys Asp Ser Glu Asp Pro Glu Pro Ala Asp
115 120 125

Arg Val Glu Leu Ala Asn Tyr Ser Val Leu Lys Glu Thr Ala Pro Trp
130 135 140

Ala Glu Ala Met Leu Arg Val Pro Thr Asp Lys Ile Lys Arg Phe Cys
145 150 155 160

Asp Asp Ser Ser Thr Ser Asp His Lys Leu Ile Asp Leu Gly Gln Leu
165 170 175

Gly Ile Ala Thr Tyr Gly Gly Ala Gly Thr Asn Ala Val Gly Asp Ile
180 185 190

Phe Ile Ser Tyr Ser Val Thr Leu Tyr Phe Pro Gln Pro Thr Asn Thr
195 200 205

Leu Leu Ser Thr Arg Arg Leu Asp Leu Ala Gly Ala Leu Val Thr Ala
210 215 220

Ser Gly Pro Gly Tyr Leu Leu Val Ser Arg Thr Ala Thr Val Leu Thr
225 230 235 240

Met Thr Phe Arg Ala Thr Gly Thr Phe Val Ile Ser Gly Thr Tyr Arg
245 250 255

Cys Leu Thr Ala Thr Thr Leu Gly Leu Ala Gly Gly Val Asn Val Asn
260 265 270

Ser Ile Thr Val Val Asp Asn Ile Gly Thr Asp Ser Ala Phe Phe Ile
275 280 285

Asn Cys Thr Val Ser Asn Leu Pro Ser Val Val Thr Phe Thr Ser Thr
290 295 300

Gly Ile Thr Ser Ala Thr Val His Cys Val Arg Ala Thr Arg Gln Asn
305 310 315 320

Asp Val Ser Leu

<210> 82
<211> 331
<212> PRT
<213> Red clover necrotic mosaic virus

B

<400> 82
Lys Ser Lys Gln Arg Ser Gln Pro Arg Asn Arg Thr Pro Asn Thr Ser
1 5 10 15
Val Lys Thr Val Ala Ile Pro Phe Ala Lys Thr Gln Ile Ile Lys Thr
20 25 30
Val Asn Pro Pro Pro Lys Pro Ala Arg Gly Ile Leu His Thr Gln Leu
35 40 45
Val Met Ser Val Val Gly Ser Val Gln Met Arg Thr Asn Asn Gly Lys
50 55 60
Ser Asn Gln Arg Phe Arg Leu Asn Pro Ser Asn Pro Ala Leu Phe Pro
65 70 75 80
Thr Leu Ala Tyr Glu Ala Ala Asn Tyr Asp Met Tyr Arg Leu Lys Lys
85 90 95
Leu Thr Leu Arg Tyr Val Pro Leu Val Thr Val Gln Asn Ser Gly Arg
100 105 110
Val Ala Met Ile Trp Asp Pro Asp Ser Gln Asp Ser Ala Pro Gln Ser
115 120 125
Arg Gln Glu Ile Ser Ala Tyr Ser Arg Ser Val Ser Thr Ala Val Tyr
130 135 140
Glu Lys Cys Ser Leu Thr Ile Pro Ala Asp Asn Gln Trp Arg Phe Val
145 150 155 160
Ala Asp Asn Thr Thr Val Asp Arg Lys Leu Val Asp Phe Gly Gln Leu
165 170 175
Leu Phe Val Thr His Ser Gly Ser Asp Gly Ile Glu Thr Gly Asp Ile
180 185 190
Phe Leu Asp Cys Glu Val Glu Phe Lys Gly Pro Gln Pro Thr Ala Ser
195 200 205
Ile Val Gln Lys Thr Val Ile Asp Leu Gly Gly Thr Leu Thr Ser Phe
210 215 220
Glu Gly Pro Ser Tyr Leu Met Pro Pro Asp Ala Phe Ile Thr Ser Ser
225 230 235 240
Ser Phe Gly Leu Phe Val Asp Val Ala Gly Thr Tyr Leu Leu Thr Leu
245 250 255
Val Val Thr Cys Ser Thr Thr Gly Ser Val Thr Val Gly Gly Asn Ser
260 265 270
Thr Leu Val Gly Asp Gly Arg Ala Ala Tyr Gly Ser Ser Asn Tyr Ile
275 280 285
Ala Ser Ile Val Phe Thr Ser Ser Gly Val Leu Ser Thr Thr Pro Ser
290 295 300

Val Gln Phe Ser Gly Ser Ser Gly Val Ser Arg Val Gln Met Asn Ile
305 310 315 320

Cys Arg Cys Lys Gln Gly Asn Thr Phe Ile Leu
325 330

<210> 83
<211> 41
<212> PRT
<213> Red clover necrotic mosaic virus

<400> 83
Ala Ser Ile Val Gln Lys Thr Val Ile Asp Leu Gly Gly Thr Leu Thr
1 5 10 15

Ser Phe Glu Gly Pro Ser Tyr Leu Met Pro Pro Asp Ala Phe Ile Thr
20 25 30

Ser Ser Ser Phe Gly Leu Phe Val Asp
35 40

<210> 84
<211> 27
<212> PRT
<213> Red clover necrotic mosaic virus

<400> 84
Ala Ser Ile Val Gln Lys Tyr Val Ile Asp Leu Gly Gly Thr Leu Thr
1 5 10 15

Ser Phe Glu Gly Pro Ser Tyr Leu Met Pro Pro
20 25

<210> 85
<211> 17
<212> PRT
<213> Red clover necrotic mosaic virus

<400> 85
Ser Ile Val Gln Lys Thr Val Ile Asp Leu Gly Gly Thr Leu Thr Ser
1 5 10 15

Phe

<210> 86
<211> 51
<212> DNA
<213> Red clover necrotic mosaic virus

<400> 86
agcatcgta agaaaactgt aattgatctc ggtggacac tcacttcttt c 51

<210> 87
<211> 51
<212> DNA
<213> Red clover necrotic mosaic virus

<400> 87
agcatcgta acaaaactgt aattgatctc ggtggacac tcacttcttt c 51

<210> 88
 <211> 51
 <212> DNA
 <213> Red clover necrotic mosaic virus

<400> 88
 agcatcgtag agaaaactgt aattgatctc ggtggacgt taacttcttt c 51

<210> 89
 <211> 16
 <212> PRT
 <213> Homo sapiens

<400> 89
 Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
 1 5 10 15

<210> 90
 <211> 48
 <212> DNA
 <213> Homo sapiens

<400> 90
 ggtgttactt ctgctcctga tactagacct gtcctgggtt ctactgct 48

<210> 91
 <211> 48
 <212> DNA
 <213> Homo sapiens

<400> 91
 ccacaatgaa gacgaccact atgatctgga cgaggaccaa gatgacga 48

<210> 92
 <211> 78
 <212> DNA
 <213> Red clover necrotic mosaic virus

<400> 92
 gaaaaactgta ggtgttactt ctgctcctga tactagacct gtcctgggtt ctactgctat 60
 tgatctcggt gggacggt 78

<210> 93
 <211> 82
 <212> DNA
 <213> Red clover necrotic mosaic virus

<400> 93
 acgtcttttg acatccacaa tgaagacgac cactatgatc tggacgagga ccaagatgac 60
 gataactaga gccaccctgc aa 82

<210> 94
 <211> 78
 <212> DNA
 <213> Red clover necrotic mosaic virus

<400> 94
 gaaaaactgta attgggttta cttctgctcc tgataactaga cctgctcctg gttctactgc 60
 tgatctcggt gggacggt 78

B1

<210> 95
<211> 82
<212> DNA
<213> Red clover necrotic mosaic virus

<400> 95
acgtctttg acattaacca caatgaagac gaccactatg atctggacga ggaccaagat 60
gacgactaga gccaccctgc aa 82

<210> 96
<211> 78
<212> DNA
<213> Red clover necrotic mosaic virus

<400> 96
gaaaactgta attgatggtg ttacttctgc tcctgatact agacctgctc ctggttctac 60
tgctctcggt gggacgtt 78

<210> 97
<211> 82
<212> DNA
<213> Red clover necrotic mosaic virus

<400> 97
acgtctttg acattaacta ccacaatgaa gacgaccact atgatctgga cgaggaccaa 60
gatgacgaga gccaccctgc aa 82

<210> 98
<211> 78
<212> DNA
<213> Red clover necrotic mosaic virus

<400> 98
gaaaactgta attgatctcg gtgttacttc tgctcctgat actagacctg ctcctggttc 60
tactgctggt gggacgtt 78

<210> 99
<211> 82
<212> DNA
<213> Red clover necrotic mosaic virus

<400> 99
acgtctttg acattaacta gagccacaat gaagacgacc actatgatct ggacgaggac 60
caagatgacg accaccctgc aa 82

<210> 100
<211> 78
<212> DNA
<213> Red clover necrotic mosaic virus

<400> 100
gaaaactgta attgatctcg gtgggtttac ttctgctcct gatactagac ctgctcctgg 60
ttctactgct gggacgtt 78

<210> 101
<211> 82
<212> DNA
<213> Red clover necrotic mosaic virus

<400> 101
acgtctttg acattaacta gagccaccac aatgaagacg accactatga tctggacgag 60
gaccaagatg acgaccctgc aa 82

B1

<210> 102
<211> 78
<212> DNA
<213> Red clover necrotic mosaic virus

<400> 102
gaaaactgta attgatctcg gtgggggtgt tacttctgct cctgatacta gacctgctcc 60
tggttctact gctacgtt 78

<210> 103
<211> 82
<212> DNA
<213> Red clover necrotic mosaic virus

<400> 103
acgtctttg acattaacta gagccacccc cacaatgaag acgaccacta tgatctggac 60
gaggaccaag atgacgatgc aa 82

<210> 104
<211> 24
<212> PRT
<213> Tobacco rattle virus

<400> 104
Ser Thr Pro Ala Ser Gly Gly Ser Gly Ala Thr Pro Pro Pro Ala Ser
1 5 10 15

Gly Gly Ala Val Arg Pro Asn Pro
20

<210> 105
<211> 107
<212> DNA
<213> Tobacco rattle virus

<400> 105
cgtcgactcc ggcctcgggg ggaagtggtg caacaccacc tcctgcgagt gggggtgctg 60
tgctcctaa tccttgatgt cgtcaaatca aaccttaag ggacctt 107

<210> 106
<211> 19
<212> PRT
<213> Tobacco rattle virus

<400> 106
Ser Thr Pro Ala Ser Gly Gly Ser Gly Ala Thr Pro Pro Pro Ala Ser
1 5 10 15

Gly Gly Ala

<210> 107
<211> 84
<212> DNA
<213> Tobacco rattle virus

<400> 107
tcgactccgg cctcgaaaaa aagtggtgca acaccaccc tcgcgagtgg gggtgcttga 60
tgtcgtcaaa tcaaaccctt aagg 84

fr

<210> 108
<211> 82
<212> DNA
<213> Tobacco rattle virus

<400> 108
gaggccggag ccccccttca ccacgttgc gtggaggacg ctcacccac gaactacagc 60
agttagttt ggaaattccc tg 82

<210> 109
<211> 14
<212> PRT
<213> Tobacco rattle virus

<400> 109
Ser Thr Pro Ala Ser Gly Gly Ser Gly Ala Thr Pro Pro Pro
1 5 10

<210> 110
<211> 69
<212> DNA
<213> Tobacco rattle virus

<400> 110
tcgactccgg cctcgaaaaa aagtggtgca acaccacctc cttgatgtcg tcaaataaaa 60
ccttaagg 69

<210> 111
<211> 68
<212> DNA
<213> Tobacco rattle virus

<400> 111
gaggccggag ccccccttca ccacgttgc gtggaggaac tacagcgtt tagttggaa 60
attccctg 68

<210> 112
<211> 9
<212> PRT
<213> Tobacco rattle virus

<400> 112
Ser Thr Pro Ala Ser Gly Gly Ser Gly
1 5

<210> 113
<211> 54
<212> DNA
<213> Tobacco rattle virus

<400> 113
tcgactccgg cctcgaaaaa aagtggttga tgtcgtaaaa tcaaacctt aagg 54

<210> 114
<211> 53
<212> DNA
<213> Tobacco rattle virus

<400> 114
gaggccggag ccccccttca ccaactacag cagtttagtt tgaaattcc ctg 53

<210> 115
 <211> 4
 <212> PRT
 <213> Tobacco rattle virus

<400> 115
 Ser Thr Pro Ala
 1

<210> 116
 <211> 39
 <212> DNA
 <213> Tobacco rattle virus

<400> 116
 tcgactccgg cctgatgtcg tcaaataaaa cctttaagg 39

<210> 117
 <211> 38
 <212> DNA
 <213> Tobacco rattle virus

<400> 117
 gaggccggac tacagcagtt tagtttgaa attccctg 38

<210> 118
 <211> 2
 <212> PRT
 <213> Tobacco rattle virus

<400> 118
 Ser Thr
 1

<210> 119
 <211> 33
 <212> DNA
 <213> Tobacco rattle virus

<400> 119
 tcgacttgat gtcgtcaaat caaaccttta agg 33

<210> 120
 <211> 32
 <212> DNA
 <213> Tobacco rattle virus

<400> 120
 gaactacagc agtttagttt ggaaattccc tg 32

<210> 121
 <211> 31
 <212> PRT
 <213> S. aureus

<400> 121
 Gly Gln Asn Asn Gly Asn Gln Ser Phe Glu Glu Asp Thr Glu Lys Asp
 1 5 10 15

Lys Pro Lys Tyr Glu Gln Gly Gly Asn Ile Ile Asp Ile Asp Phe
 20 25 30

<210> 122

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 122

ctagcatgaa ttttgacatt c

21

b1
<210> 123

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic

<400> 123

gtacttaaaa ctggaagaat t

21

Cone.